

## ABSTRACTS

*This section of the JOURNAL is published in collaboration with the two abstracting Journals, ABSTRACTS OF WORLD MEDICINE and OPHTHALMIC LITERATURE, published by the British Medical Association. The abstracts are divided into the following sections: Syphilis (Clinical, Therapy, Serology, Pathology, Experimental), Gonorrhoea, Non-Gonococcal Urethritis and Allied Conditions, Chemotherapy, Public Health and Social Aspects, Miscellaneous. After each subsection of abstracts follows a list of articles that have been noted but not abstracted. All subsections will not necessarily be represented in each issue.*

### SYPHILIS (Clinical)

**Syphilitic Optic Atrophy.** (Atrofia óptica sifilítica.) HORSTMANN, O. F. (1956). *Arch. Hosp. univ. (Habana)*, **8**, 169.

The author describes the symptoms and signs of syphilitic atrophy and emphasizes the value of perimetry and ophthalmoscopic examination in neurological syphilitic patients.

The pathogenesis, pathology, and therapy are reviewed.  
*O. Ferrer*

**Syphilitic Optic Atrophy in Childhood.** (Atrophie optique syphilitique chez l'enfant.) FARNARIER, G., ARNOUX, M., and GÉRIN, G. (1957). *Rev. oto-neuro-oftal. (B. Aires)*, **29**, 61.

A child of 14 showed primary optic atrophy of the right eye with total blindness. On the left side there was an Argyll Robertson pupil with a fall in visual acuity and general contraction of the visual field. Serological tests for syphilis were positive in the blood and negative in the cerebrospinal fluid.

After antisyphilitic treatment the vision of the left eye continued to deteriorate and operation was decided upon. No striking lesion was disclosed. The left optic nerve was freed from some minor adhesions. The child died on the 6th post-operative day.  
*A. A. Douglas*

**Unilateral Argyll Robertson Sign and Herpes Ophthalmicus.** (Signe d'Argyll Robertson unilatéral et zona ophtalmique.) OURGAUD, A. G., and BÉRARD P. V., (1957). *Rev. oto-neuro-oftal. (B. Aires)*, **29**, 28. 6 refs.

**Syphilis in Pregnancy, with Special Emphasis on Serologic Problem Cases.** LIGHTER, A. G., (1957). *Amer. J. Obstet. Gynec.*, **74**, 139. 7 refs.

**Does Penicillin still mask Syphilis? A Critical Study of the Question and its Practical Consequences.** (La pénicilline masque-t-elle encore la syphilis?) DUREL, P., and HARDY, N. (1957). *Rev. Hyg. Méd. soc.*, **5**, 219. Bibl.

**Syphilis. Review of the Recent Literature.** BEERMAN, H., SCHAMBERG, I. L., NICHOLAS, L., and GREENBERG, M. S. (1957). *A.M.A. Arch. intern. Med.*, **99**, 932. Bibl.

### SYPHILIS (Therapy)

**Comparative Study of Two Types of Treatment in 250 Cases of Early Syphilis.** (Estudio comparativo de dos tipos de tratamiento en 250 casos de lues reciente.) LÓPEZ, P. B. (1956). *Bol. Soc. cubana Derm. Sif.*, **13**, 111.

The author presents the results of treatment, at the Dr. Carlos J. Finlay Military Hospital, Cuba, of 235 cases of primary and secondary syphilis, of which 144 received crystalline benzylpenicillin by intramuscular injection in addition to arsenoxide and bismuth, while 91 received penicillin and bismuth only. The comprehensive follow-up schedule adopted is outlined. On the completion of 6 to 8 months of post-treatment observation the patients were readmitted to hospital for detailed study, including examination of the cerebrospinal fluid. Since the cure rate at that time was 97 per cent. in both groups the author concludes that arsenic should no longer be used in the treatment of syphilis.

[It would seem from the figures given for the incidence of sero-resistance, sero-relapse, and neurosyphilis and the development of open lesions in the two groups that the ultimate cure rate was below the figure of 97 per cent., but the duration of follow-up to which these figures relate is not stated.]  
*Eric Dunlop*

**Cortisone in the Suppression of the Herxheimer Reaction in Syphilitic Mesoarthritis.** (Cortison zur Unterdrückung der Herxheimerschen Reaktion beiluetischer Mesoarthritis.) BRAUNSTEINER, H. (1957). *Wien. klin. Wschr.*, **69**, 154.

In parallel with the decrease in incidence of syphilis during the past decade, the problem of mesoarthritis is diminishing and its treatment is of less immediate concern. However, despite the advent of penicillin, Herxheimer reactions are occasionally still seen in such cases, carrying with them the danger of acute coronary occlusion and vascular thrombosis. At the Third Medical Clinic of the University of Vienna three patients whose penicillin therapy for syphilitic mesoarthritis had to be discontinued because of these complications were given a protective course of cortisone (150 mg. daily) together with slowly increasing doses of penicillin. Once adequate antisyphilitic therapy had been given the steroid dosage was gradually reduced over a 4-week

period. No complications either from the antisyphilitic or from the steroid treatment were noted, although the authors point out the need for precautions to avoid cardiac decompensation and suggest that the use of prednisolone would minimize this danger. The development of intravascular thromboses from steroid therapy, although not encountered, could be guarded against with anticoagulants.

Allene Scott

#### **Benzathine Penicillin G in the Treatment of Syphilis.**

SMITH, C. A., KAMP, M., OLANSKY, S., and PRICE, E. V. (1956). *Bull. Wld Hlth Org.*, 15, 1087. 4 figs, 5 refs.

The results obtained with benzathine benzylpenicillin in the treatment of syphilis, and preliminary experience with this drug in asymptomatic neurosyphilis, are reported. A single injection of 2·5 mega units benzathine benzylpenicillin, which in most instances produces and maintains a detectable blood level for periods up to 3 weeks, was given in all cases. There were no failures in 52 cases of primary sero-negative syphilis, but of 67 patients with sero-positive primary syphilis, two required further treatment—one for serological relapse and one for re-infection. In a series of 155 cases of secondary syphilis the cumulative re-treatment rate was 5·5 per cent., re-infection being the cause in 4·6 per cent. These results were better than those achieved with 4·8 mega units penicillin with aluminium monostearate (PAM) administered at a single session or at two, three, or four sessions. The sero-negativity rates 2 years after treatment were: primary sero-negative syphilis 100 per cent., primary sero-positive syphilis 96 per cent., and secondary syphilis 94·5 per cent.

The authors compare the results in 47 cases of asymptomatic neurosyphilis treated with one dose of 2·5 mega units benzathine benzylpenicillin with those obtained in 53 similar cases given PAM in a dose of 4·0 to 5·9 mega units. In all the cerebrospinal fluid findings were abnormal, with pleocytosis (over 20 per c.mm.), increased protein content, and a positive response to the complement-fixation test for syphilis. Although the series was not large, it is significant that 18 months after treatment 21 per cent. of the group given benzathine benzylpenicillin had relapsed compared with 10·5 per cent. of the group treated with other penicillin preparations; 25 months after treatment the relapse rate in the latter group had risen to 15·8 per cent. The authors consider these preliminary data to show that one dose of 2·5 mega units benzathine benzylpenicillin is not enough for asymptomatic neurosyphilis. The schedule of dosage with other penicillin preparations (4·0 to 5·9 mega units) was also unsatisfactory.

Reactions to treatment were not troublesome. Altogether some 7,000 cases have been treated with benzathine benzylpenicillin, and the incidence of reactions has remained about the same—2·39 per 1,000. This compares favourably with an incidence of 4·52 per 1,000 patients treated with PAM. Urticaria was the most common side-effect. There was no tendency to delayed reactions as a result of long-sustained levels of penicillin in the blood.

Robert Lees

#### **Experiences with a Follow-up Examination of 200 Tabetic Patients.** ORBÁN, T. (1957). *Acta psychiat. neurol. scand.*, 32, 89. Bibl.

The author presents the results of a follow-up study of 200 tabetic out-patients attending the National Dermato-Veneropathological Institution, University of Budapest, since 1952. Up to 1949 many of these patients had previously been treated in venereal and neuro-logical clinics with standard courses of bismuth and arsphenamine, and since then with penicillin, and 58 per cent. of them had minimal symptoms with none of the typical tabetic complaints. The author considers this to be a general feature of treated neurosyphilis at the present day. The conclusions drawn from this study [which are in general agreement with British and American views] are that the best prophylaxis against tabes in the pre-penicillin era was at least four courses of arsenic and bismuth begun in the early sero-negative stage of syphilis. Nowadays it is considered that penicillin in a total dosage of 12 to 18 mega units affords optimum treatment for this type of neurosyphilis, and that such treatment will often improve symptoms, even in cases shown to be inactive by cerebrospinal fluid examination. When symptoms persist after treatment the author gives no further penicillin, but has found that vitamins, chlorpromazine, ACTH, vasodilator drugs, and atropine are all useful in appropriate cases.

G. L. M. McElligott

**Relapse of Syphilitic Roseola after Treatment with 15 mega units of Penicillin in a Patient with Chronic Hepatitis and Diabetes. First Report of a Definite Case of Partial Penicillin Resistance.** (Récidive d'une roséole syphilitique après traitement par 15 millions de pénicilline, chez un sujet atteint d'hépatite chronique avec diabète. Premier cas certain de pénicillino-résistance partielle.) BOLGERT, M. (1957). *Bull. Soc. méd. Hôp. Paris*, 73, 357.

#### **SYPHILIS (Serology)**

**Quantitative Studies of Lipid-soluble Tissue Antigens as exemplified by the Wassermann Antigen-Antibody System.**

**I. Estimation of the Wassermann Antibody in Absolute Weight Units.** OSLER, A. G., and KNIPP, E. A. (1957). *J. Immunol.*, 78, 19. 2 figs, 23 refs.

In this paper from the Johns Hopkins Hospital and School of Hygiene and Public Health, Baltimore, a procedure is described for the quantitative estimation of the Wassermann antibody. The antibody-containing aggregates resulting from the interaction of syphilitic serum with an antigen containing cardiolipin, lecithin, and cholesterol are washed and heated with 6N hydrochloric acid under pressure. Ninhydrin is added and the pH adjusted to 5·0 with 6N sodium hydroxide. A blue colour is produced by the reaction of ninhydrin with the  $\alpha$ -amino groups set free by the acid hydrolysis and its intensity is measured spectrophotometrically. Commercial preparations of human  $\gamma$  globulin are used as reference proteins to enable the ninhydrin colour values

to be related to  $\gamma$ -globulin nitrogen concentrations. [Reference should be made to the original paper for details of the technique, which is said to be capable of detecting as little as 10  $\mu$ g. of antibody nitrogen with an approximate error of 1  $\mu$ g.]

The antigen used was a saline suspension containing cardiolipin, lecithin, and cholesterol in the weight ratios 1 : 8 : 20. Interaction of serum and antigen for 6 days in a refrigerator was necessary to obtain the maximum precipitation of antibody. Antigens containing cardiolipin alone failed to remove all the antibody from the serum. No antibody could be demonstrated in sera on which the VDRL test had given a negative result. Normal serum, either fresh or after heating to 56°C. for 30 min., diminished the formation of specific aggregates with syphilitic serum and had a solvent action when added to precipitates which had already been formed. In contrast, the addition of normal rabbit serum to a syphilitic rabbit serum increased the amount of precipitable nitrogen, possibly owing to binding of complement. Inactivation of complement by the customary heating to 56°C. for 30 min. showed that about 83 per cent. of the Wassermann antibody in a syphilitic rabbit serum was lost by this treatment; in human serum the loss was about 30 per cent. Removal of complement from syphilitic rabbit sera by the addition of the washed precipitate from an anti-bovine-albumin serum with its homologous antigen or by the addition of a chelating agent also diminished the amount of precipitable nitrogen compared with the values obtained with untreated serum. Removal of complement in these experiments was not complete, as the serum still had some haemolytic activity.

Determinations of the maximum precipitable nitrogen in syphilitic sera showed good agreement with the values calculated from the Heidelberger-Kendall equation. They also showed that as little as 0.014  $\mu$ g. Wassermann antibody nitrogen may be detected by the VDRL test.

A. E. Wilkinson

## II. Comparative Studies with Mammalian and Plant Tissue Phospholipids. OSLER, A. G., and KNIPP, E. A. (1957). *J. Immunol.*, **78**, 30. 6 figs, 28 refs.

Using the technique for estimating Wassermann antibody nitrogen described in Part I, the authors have shown that antigens containing cardiolipin prepared from either human or beef heart muscle are equally effective in precipitating the antibody from syphilitic human or rabbit serum, or from the serum of rabbits artificially immunized with cardiolipin antigens. Sitolipin, a phosphatide obtained from wheat germ, and cardiolipin extracted from human liver were found to be less effective than the preparations from human or bovine heart muscle.

Quantitative complement-fixation tests also showed that antigens made with cardiolipin from human or beef heart muscle produced equal degrees of fixation with human syphilitic serum or with the serum of rabbits immunized with either phospholipid. In contrast to the findings in flocculation tests, antigens containing cardiolipin from human liver tissue gave greater degrees of fixation than those in which the phospholipid was prepared from heart tissue. When the components of the

cardiolipin-lecithin-cholesterol antigens were examined separately it was shown that human or beef heart cardiolipin can fix only minimal amounts of complement with Wassermann antibody unless lecithin is present as well. This held good whether cholesterol was present in the antigen or not. Wassermann antibody would, however, fix some complement when lecithin alone was used as antigen; this was found to be the case not only with the natural product from beef heart, which might have contained traces of cardiolipin as impurity, but also to a lesser degree with synthetic L- $\alpha$ -(dimyristoyl) and L- $\alpha$ -(dioleoyl) lecithins.

The Wassermann antibody and that found in sera giving non-specific reactions in serological tests for syphilis appear to react similarly with cardiolipins produced from various sources. This suggests that in some individuals the Wassermann antibody may represent a response to an antigenic tissue component. In treponemal infections the antibody may have a dual origin, coming both from an antigenic fraction of the treponeme as yet unidentified and from the tissue antigen.

A. E. Wilkinson

## Reiter Protein Complement-Fixation Test for Syphilis.

CANNEFAX, G. R. and GARSON, W. (1957). *Publ. Hlth Rep. (Wash.)*, **72**, 335.

A complement-fixation test for syphilis is described in which the antigen used is a protein fraction of the Reiter treponeme. This is prepared in bulk by growing the organism in Brewer's medium from which the agar has been removed and 10 per cent. rabbit serum added. After incubation for 4 to 6 days at 37°C. the organisms are separated by centrifuging and washed three times in saline to free them from constituents of the medium. Each gramme of sedimented organisms is resuspended in 20 ml. saline and the treponemes broken down by freezing to -70°C. and thawing at 37°C., these processes being repeated fifteen times. The suspension is centrifuged and the opalescent supernatant fluid containing the liberated protein separated off. The deposit is resuspended in 10 ml. saline and subjected to five further cycles of the treatment outlined. The supernatant fluids are pooled and dialysed against ammonium sulphate solution in concentrations increasing from 10 to 75 per cent. of saturation. The protein which is precipitated is dissolved in 2 ml. saline for each original gramme of treponemes (wet weight) and dialysed against normal saline for 96 hrs. After centrifuging, the supernatant constitutes the antigen [It is not stated whether it is further diluted before use.] All the procedures of centrifugation and dialysis are carried out in the cold.

Tests were carried out by the Kolmer one-fifth-volume technique with the Reiter protein as antigen (RPCF test) in parallel with the treponemal immobilization (TPI) test and the treponemal complement fixation (TPCF) test of Portnoy and Magnuson (*J. Immunol.*, 1955, **75**, 348; *Abstr. Wld Med.*, 1956, **19**, 442). The specificity of the RPCF test was assessed by examining 615 sera giving negative TPI and TPCF reactions during a serological survey of an area with a high incidence of syphilis. These patients were presumed to be non-syphilitic, no

clinical details being available at the time of testing. Sera from fourteen of them were reactive with the RPCF test, and inquiry showed that seven had previously been diagnosed as syphilitic and treated, while three denied any past history of the disease; no information could be obtained about the remaining seven patients. A further 765 sera came from patients previously diagnosed as syphilitic [It is not stated whether these were treated or untreated cases.] All stages of the disease were represented. The proportions of positive reactions given by the three tests were: TPI 75.4 per cent., RPCF 82.6 per cent., and TPCF 86.8 per cent. The inclusion of 140 patients with primary and 117 with secondary syphilis accounts for the low sensitivity of the TPI test, as the appearance of immobilizing antibody is known to be delayed. Differences in sensitivity between the three tests with sera from the later stages of syphilis were not thought to be significant.

It is concluded that the RPCF test compares favourably in sensitivity and specificity with the TPI and TPCF tests and that it merits further investigation. *A. E. Wilkinson*

**The Significance of the Lipid Fraction of Reiter's Treponeme in the Pallida Reaction.** (Die Bedeutung der Lipidfraktion der Reiter-Spirochäte in der Pallida-Reaktion). JENEY, E., CSÓKA, I., and BIRÓ, L. (1957). *Z. Immun.-Forsch.*, **113**, 489. 1 fig., 7 refs.

The role of the lipid fraction of Reiter's treponeme and reagin in the pallida reaction for syphilis has been re-investigated at the University of Debrecen, Hungary, previous studies reported in the literature having given contradictory results. Syphilitic sera were first tested by both the Wassermann (WR) and pallida reactions. The sera were then exposed to the action of the treponemal antigen in the presence of complement, after which the WR was again performed with the exposed serum in order to determine whether any decline in positivity had taken place. Similarly, sera were exposed to the WR antigen and then subjected to the pallida reaction. The experiments were also quantitatively repeated on serially diluted sera.

It was found that both qualitatively and quantitatively the sera exposed to either antigen gave a weaker positive reaction than originally. But one unexplained finding was that only weakly positive sera showed a decline in titre when exposed to the treponemal antigen, whereas the WR antigen was able to influence also strongly positive sera. It is concluded that these results confirm that the reagin-binding capacity of the lipid fraction of the Reiter treponeme is now established. *G. W. Csonka*

***Treponema pallidum* Immune Adherence (TPIA) in Diagnosis of Syphilis.** MILLER, J. N., BOAK, R. A., and CARPENTER, C. M. (1957). *J. Amer. med. Ass.*, **163**, 112. 4 refs.

The *Treponema pallidum* immune adherence (TPIA) test is based on the observation that treponemes sensitized by antibody in the presence of complement adhere

to human erythrocytes. The method of carrying out the test is described in detail.

A preliminary study of 41 selected sera (21 TPI-positive and twenty TPI-negative), carried out at the University of California School of Medicine, Los Angeles, showed complete agreement between the TPI and TPIA test results. In parallel tests on 25 sera from patients with treated early syphilis the TPI reaction was positive in twenty and doubtful in one, while the TPIA test was positive in 23, including the serum giving a doubtful TPI reaction. Both tests gave positive results on 44 sera from patients with positive STS reactions although they had no history of syphilis. Sera from 25 normal individuals gave negative results in both tests, and the TPIA test gave only one positive result in tests on 53 sera from patients with positive STS reactions but with no history of syphilis whose TPI reactions had been found negative.

The TPIA test antigen is stable for at least 6 months. The test is simpler and less time-consuming than the TPI test, and its results are in good agreement with those of the latter. *A. E. Wilkinson*

**Complement Titration and a Complement-Fixation Reaction with *Treponema pallidum*.** (Eine Komplement-Titer- und Komplement-Bindungsreaktion mit *Treponema pallidum*.) MEINICKE, K. (1956). *Hautarzt*, **7**, 540. 4 refs.

In this paper from the University of Munich the author describes a series of tests in which he estimated the titre of complement present both before and after carrying out the treponemal immobilization (TPI) test. [For details of the techniques used the original paper should be consulted.] With sera that were positive to the standard serological tests (STS) there was a fall in the complement titre of 8 to 10 units, whereas with sera negative to the STS the fall in complement titre was only 2 to 4 units. The results of the complement titration and the TPI tests were in agreement in most instances.

A complement-fixation test is also described, the antigen for which was prepared from a virulent strain of *Treponema pallidum* extracted from rabbits' testes not more than 8 days after inoculation. The suspension was washed, centrifuged, and passed through a filter. The washed treponemes were then resuspended in 0.3 per cent, phenol saline and the concentration standardized at twenty to thirty treponemes per microscope field. Other reagents used in the reaction were inactivated serum, complement, and a haemolytic system. [Details of the technique should again be studied in the original paper.]

The results given by this test were compared with those of the TPI test and STS in twenty cases. There was a considerable measure of agreement in the case of the TPI test, but agreement was not so marked in the case of the STS, and the author discusses reasons for this difference.

[This work will be of considerable interest to serologists at the present time in view of the recent description by Price and Whelan of the treponemal Wassermann reaction.] *R. D. Catterall*

**Investigations on the Reproducibility of the Quantitative *Treponema pallidum* Immobilization Test.** [In English]. NIELSEN, H. A. (1957). *Acta path. microbiol. scand.*, **40**, 119. 3 figs, 20 refs.

An investigation of the reproducibility of the quantitative treponemal immobilization (TPI) test is reported from the State Serum Institute, Copenhagen. Two serum mixtures were studied, each consisting of equal parts of six human sera and so prepared that Mixture A had a lower content of immobilizing antibody (immobilizin) than Mixture B. Mixture A contained serum from three cases of treated early syphilis, two cases of treated latent syphilis, and one case of treated congenital syphilis, while Mixture B contained serum from three cases of treated symptomatic syphilis, one case of treated and one case of untreated latent syphilis, and one case of untreated early syphilis. Altogether 32 pairs of titrations of the immobilizin content of the two mixtures were carried out over a 4-week period. The suspension of treponemes used was made up in basal medium (less thioglycollate) in two different batches, each divided into eight portions. Each batch was then further subdivided into two groups, each group of four portions being made up with a different thioglycollate solution. It was estimated that the standard deviation of duplicate titrations of the same pool using the same complement and the same suspension of treponemes was 22 per cent. and that the standard deviation of repeated titrations of the same pool using the same complement but different suspensions was 52 per cent. The contribution to the difference due to the use of varying suspensions of treponemes was about two-thirds of the total difference. *R. R. Willcox*

**Proposed Methods of Increasing the Sensitivity of the Nelson-Mayer T.P.I. Test and Their Practical Application.** (Vorschläge zur Methodik eines T.P.I.-Testes Nelson Mayer mit grösserer Empfindlichkeit und deren praktische Anwendung). EHRMANN, G. (1957). *Arch. klin. exp. Derm.*, **204**, 37. 12 refs.

The technique of performance of the treponemal immobilization (TPI) test has been studied in detail by the author at the University Clinic for Venereal and Skin Diseases, Vienna, with a view to increasing its sensitivity. Increasing the reaction time beyond 18 hrs was found to increase the sensitivity of the test by only a very small amount. The optimum temperature is considered to be 35° to 36°C., a higher temperature producing a more rapid reaction but giving an increased number of inconclusive results. The stability and activity of complement are regarded by the author as the most important single factors. Increasing the amount of residual complement did not make the test more sensitive. However, an increase in sensitivity was considered to occur when the tubes were shaken after 12 hrs and the incubation period prolonged up to 25 hrs, this conclusion being reached after the examination of 381 specimens of serum. In 23 cases the result was negative when the test was performed by the usual methods, but became positive when the tubes were shaken after 12 hrs while sixteen sera which gave negative or doubtful results

by the usual technique gave either doubtful or positive results when this modification was introduced.

*R. D. Catterall*

**Iodine Test in the Detection of Biologic False Positive Tests for Syphilis.** (Il test allo jodio, quale orientamento nelle reazioni aspecifiche per la lue.) TORCHI, M. (1956). *Arch. ital. Derm.*, **28**, 265. 21 refs.

The author points out that while true positive reactions in the serological tests for syphilis are due to the presence of specific antibody globulin, globulins which react similarly with the antigens used, but which are not necessarily identical, may occur in the blood in numerous conditions in which protein metabolism is altered. Although such conditions are usually associated with an increase in the globulin and a decrease in the albumin fraction of the plasma proteins, the demonstration of these changes is of no help in distinguishing biological false positive from true positive reactions. For this purpose he suggests the use of a simple iodine test described by Mallén in 1950. [No reference is given.] This consists in mixing on a glass slide one drop of Lugol's iodine solution with a drop of clear serum. The result is read in 1 to 2 min under the low power of the microscope, a positive reaction being indicated by a blackish precipitate and graded quantitatively from + to + + + +. In a negative reaction the serum remains quite clear.

This test is found to give consistently negative results in healthy individuals, and the result is also negative in syphilitics, regardless of their serological findings, except in recent primary and secondary cases, in which it is positive. Thus of 139 iodine tests carried out on syphilitic sera at the Civil Hospital, Bolzano, 127 (91 per cent.) gave a negative result. Of the remaining twelve patients, seven were suffering from conditions involving a plasma protein upset and the remaining five had either a chancre or syphilitic roseola. It is suggested that in early cases of syphilis such as these five an antibody globulin which has not yet become differentiated to the mature, non-iodine-reacting type is probably present.

The iodine test was also carried out on sera from 286 medical patients in parallel with three complement-fixation tests with different antigens and two flocculation reactions, the Meinicke (M.K.R.II) and citochol reactions. In 89 per cent. all the tests gave negative reactions. In 8 per cent. there was a positive iodine reaction together with a biological false positive reaction with one or more of the serological tests; these patients were suffering from various diseases including bronchopneumonia, hepatitis, rheumatism, polyarteritis, and cachexia, and it is claimed that the positive iodine reaction helped to reveal their positive serological reactions as biologically false. Negative serological reactions associated with a positive iodine reaction were found in ten cases (3 per cent.), this result being interpreted as due to a mild dysproteinæmia, as yet insufficient to produce a false positive serological reaction. In a single case a false positive serological reaction was associated with a negative iodine reaction, providing an important reminder that the iodine test is not infallible. Detailed analysis of the results of the

serological tests in the above series and their correlation with those of the iodine test and with the plasma protein pattern show that a positive iodine reaction is more often associated with non-specific flocculation reactions than with non-specific complement-fixation reactions.

F. Hillman

**Hypergammaglobulinemia, Circulating Anti-Coagulant, and Biologic False Positive Wassermann Reaction. A Study in Two Cases.** LAURELL, A., and NILSSON, I. M. (1957). *J. Lab. clin. Med.*, **49**, 694. 5 figs, 22 refs.

**Value and Significance of the Treponemal Immobilization Test.** (Le test d'immobilisation du treponeme). OLIVIER, L., REBOUL, E., and MOINE, M. (1957). *Rev. Hyg. Méd. soc.*, **5**, 131.

**Comparison of *Treponema pallidum* Immobilization and *Treponema pallidum* Complement-Fixation Tests.** EY, L. F., KERSELL, C. C., and BAUER, A. H. (1957). *Ohio St. med. J.*, **53**, 653. 6 refs.

**Significance of the Nelson Test for the Sero-Diagnosis of Syphilis.** (Die Bedeutung des Nelson-Tests für die Lues-Serodiagnostik.) HARMSSEN, H., and FROMM, G. (1957). *Dtsch. med. Wschr.*, **82**, 907. Bibl.

**Positive Serologic Tests for Syphilis. True or False Positive Reactions.** TRICE, E. R., and FOWLKES, R. W. (1957). *Virginia med. Monthly*, **84**, 219. 12 refs.

**Relative Specificity of Serologic Tests for Syphilis in *Mycobacterium leprae* Infection.** KENT, J. F., GARCIA OTERO, A., and HARRIGAN, R. E. (1957). *Amer. J. clin. Path.*, **27**, 539. 30 refs.

**Investigations into Strongly Anti-complementary Human Sera 7.** NØRGAARD, O. (1957). *Acta path. microbiol. scand.*, **40**, 445. 12 refs.

## GONORRHOEA

**Treatment of Penicillin-Resistant Gonorrhoea.** (Zur Behandlung der penicillin-resistenten Gonorrhoe.) STUHLERT, H. (1957). *Z. Haut- u. Geschl.-Kr.*, **22**, 189. 7 refs.

A case of gonorrhoea which was resistant to both penicillin and "terramycin" (oxytetracycline) is reported from the Municipal Dermatological Clinic, Aachen. The patient was first given two intramuscular injections, of penicillin each of 400,000 units without effect. This was followed by 1 g. oxytetracycline daily for 4 days and, as this also failed, by another three injections of 400,000 units penicillin. In spite of this treatment gonococci were still present in the urethral discharge, but they cleared quickly and permanently after the administration of 1 g. streptomycin. Attempts to culture the gonococci were unsuccessful.

G. W. Csonka

**Oral Potassium Penicillin G combined with Probenecid in the Treatment of Gonorrhoea in the Male.** MARMELL, M., and PRIGOT, A. (1957). *Amer. J. med. Sci.*, **233**, 256. 3 refs.

An investigation was undertaken at Harlem Hospital, New York, to determine the optimum dose and dosage schedule for a combination of oral penicillin and probenecid in the treatment of gonorrhoea in the male, this combination having been reported to give higher blood levels of penicillin and to maintain them over a longer period of time than penicillin administered alone. All the patients studied presented clinical and laboratory evidence of gonorrhoea before treatment, and were considered cured if smears and cultures became negative for a minimum of 6 days after treatment. The drugs were given in the form of tablets, each containing 100,000 units crystalline potassium benzylpenicillin and 0.25 g. probenecid. Of the six dosage schedules employed, three provided 800,000, 600,000, and 400,000 units penicillin respectively combined with 0.25 g. probenecid, per 100,000 units given in divided doses over 24 hrs, two provided single doses of 300,000 and 400,000 units penicillin respectively combined with probenecid in the same proportion, and one provided a single dose of 400,000 units of penicillin plus 1.5 g. probenecid. Of 129 patients treated, 92 were adequately followed up.

All of 22 patients treated with 800,000 units or 600,000 units penicillin in combination with 0.25 g. probenecid per 100,000 units in divided doses were cured, as were all but one of thirteen receiving 400,000 units penicillin plus 0.25 g. probenecid per 100,000 units in divided doses (92 per cent. cure). A single dose of 400,000 units of penicillin with probenecid in the same proportion resulted in three failures out of 27 patients treated (88 per cent. cure), and increasing the amount of probenecid given with the same dose did not improve the cure rate (eight out of ten patients). Only five of eight patients treated with single dose of 300,000 units penicillin and 0.75 g. probenecid were cured. There were no toxic reactions from the drugs.

The authors conclude that oral benzylpenicillin given effectively can cure gonorrhoea in the male when employed in dosages approaching those used in parenteral therapy, but that single-dose schedules are less satisfactory.

[It is debatable whether, in gonorrhoea, the oral administration of penicillin presents any advantage over parenteral administration. The study would have been of much more value if the numbers in each group had been greater and if a control series had been treated without probenecid.]

Leslie Watt

**Prolonged Survival of *Neisseria gonorrhoea*: an Aid to the Diagnosis of Gonorrhoea.** COLQUHOUN, C. B. G., and COOPER, G. N. (1957). *Med. J. Aust.*, **1**, 413. 3 refs. The authors discuss methods and difficulties of diagnosis of gonococcal infections under conditions in Australia, where, it seems, cultural methods have been available only in clinics equipped for bacteriological investigation and have given inconsistent results. With a view to finding a satisfactory technique they investigated

the possibility of the use of Stuarts' holding medium (*Brit. med. J.*, 1948, 2, 421; *Abstr. Wld Med.*, 1949, 5, 353) as an aid to the routine cultural diagnosis of genital infections in males and females. The study lasted for more than a year and led to the conclusion that the method was satisfactory for the diagnosis and exclusion of gonococcal infection. Of 327 cases of gonorrhoea (out of 1,159 cases tested) in the male, smears and cultures were positive in 280 (85.5 per cent.), smears were positive and cultures negative in 34 (10.5 per cent.), and smears were negative and cultures positive in thirteen (4 per cent.). Of 47 cases (out of 275 cases tested) in the female, smears and cultures were positive in 28 (59.5 per cent.), smears were positive and cultures negative in two (4.5 per cent.), and smears were negative and cultures positive in seventeen (36 per cent.). The cultural method detected some 30 per cent. more cases in the female than direct microscopical examination, and for this purpose the Stuart technique proved of outstanding value. In males the method was less satisfactory, but gave useful confirmation of diagnosis obtained by smear examination. Relative lack of success with men was attributed to contamination of the specimens with *Proteus vulgaris* in some cases, to the collection of superficial and therefore oxygenated pus in others, and, perhaps most important, to the fact that some patients, especially seamen, had received self-administered treatment before presenting for diagnosis.

A. J. King

**Failure of Silver Nitrate Prophylaxis for Gonococcal Ophthalmia Neonatorum.** PEARSON, H. E. (1957). *Amer. J. Obstet. Gynec.*, 73, 805. 10 refs.

From a review of the literature and his own experience the author suggests four possible reasons for the failure of silver nitrate prophylaxis to prevent the occurrence of gonococcal ophthalmia neonatorum;

- (1) the drug is of little or no value;
- (2) it is not properly administered;
- (3) infection occurs from adjacent skin after the drug has been dissipated;
- (4) failure on occasion to implement routine use of the drug.

During the 10 years 1946-56 there were 67,200 live births at the Los Angeles County Hospital. All the babies were treated as a routine before leaving the delivery room with 1 per cent. silver nitrate eye-drops, the eyelids being held apart by a nurse and the drops inserted by a resident, intern, or medical student. Despite this there were forty instances of gonococcal ophthalmia neonatorum. Nearly half the babies involved were prematurely born. In more than half of the cases the diagnosis of gonococcal ophthalmia was made on the 3rd or 4th day of life. Two infants had gonococcal ophthalmia at birth; in these two cases the membranes had been ruptured for 24 and 48 hrs respectively before delivery.

Commenting on his findings, the author states his opinion that liability to infection is probably conditioned by the number of gonococci present in the maternal cervix at the time of delivery. The greater risk to prematurely

born infants which is apparent is presumed to be due to the poorer resistance to infection of the immature foetus.

R. S. Morton

**Ophthalmia Neonatorum.** (Ophtalmie des nouveau-nés.) DUMONT, P., and HAZE, M. DE (1956). *Bull. Soc. roy. belge Gynéc. Obstét.*, 25, 212-225. 6 tables, 1 graph.

**Bibliography of Internal Medicine: Gonorrhoea and Gonococcal Infection.** BLOOMFIELD, A. L. (1957). *J. chron. Dis.*, 5, 592.

**NON-GONOCOCCAL URETHRITIS AND ALLIED CONDITIONS**

**Effect of Antibiotics upon the Course of Non-Gonococcal Urethritis.** LAIDIG, C. E., and BERG, P. (1957). *J. Urol. (Baltimore)*, 77, 457. 20 refs.

Non-gonococcal urethritis (NGU) is a common condition among U.S. service men in the Far East, and although several workers have already attempted to evaluate various therapeutic regimens the follow-up period in most reported series has been too short. In this paper the authors analyse, from a U.S. Air Force hospital near Tokio, the results of 10 weeks' treatment of 252 cases of venereal NGU by four different methods:

- (1) Of 49 patients treated with 1 g. streptomycin and 4 g. sulphadiazine daily for 4 days, 37 (76 per cent.) were cured;
- (2) Of sixty patients given 1 g. aureomycin daily for 4 days, 42 (70 per cent.) were cured;
- (3) Of 63 patients treated with 3 tablets of the mild analgesic "pyridium" daily for 3 weeks, 49 (81 per cent.) were cured;
- (4) Of eighty patients given inactive placebo tablets for varying periods, 67 per cent. were cured.

Although the ultimate clinical outcome of the condition was the authors' main concern, the course of the disease in the various treatment groups was carefully watched and noted and their conclusions regarding its natural history, management, and treatment are valuable. They consider NGU to be a low-grade, generally self-limited, inflammatory process, typified by periods of complete remission followed by subsequent relapse, and that approximately two-thirds of the cases clear spontaneously without antibiotics. They found, however, that although a single course of antibiotics shortened the course of the attack in most cases it cured no greater number of patients than placebos or pyridium and also that, when additional therapy, usually antibiotics, was given to the patients who did not get well in a few weeks, the eventual cure rates in all groups were substantially the same.

G. L. M. McElligott

**Non-Specific Prostatitis-Urethritis.** TESSLER, A. N., and RICHARDSON, J. F. (1957). *U.S. armed Forces med. J.*, 8, 820. 8 refs.

**Non-Specific Epididymitis in the Military Service.** ROSS W. M., and MAYNARD, J. H. (1957). *U.S. armed Forces med. J.*, **8**, 841. 6 refs.

# PUBLIC HEALTH AND SOCIAL ASPECTS

**Outbreak of Gonorrhoea and Early Syphilis in Massachusetts.** FIUMARA, N. J., SHINBERG, J. D., BYRNE, E. M., and FOUNTAINE, J. (1957). *New Engl. J. Med.*, **256**, 982. 1 fig., 7 refs.

**Syphilis Morbidity Reporting by Private Physicians.** TAYLOR, E. E., and WRIGHT, J. J. (1957). *Publ. Hlth Rep. (Wash.)*, **72**, 85. 7 refs.

**Venereal Disease Contacts of Servicemen in Massachusetts, 1949-55.** FIUMARA, N. J. (1957). *Publ. Hlth Rep. (Wash.)*, **72**, 455. 4 figs, 6 refs.

# MISCELLANEOUS

**Behçet's Syndrome with Neurological Complications.** WADIA, N., and WILLIAMS, E. (1957). *Brain*, **80**, 59. 2 figs, 31 refs.

Behçet's syndrome is a rare disorder characterized by oral and genital ulceration and hypopyon iritis. Recurrent attacks tend to occur 3 or 4 times a year and the mouth, genitalia, and eyes may be affected separately or together. Ocular involvement is at first unilateral, but later there may be serious disturbances of vision in both eyes, often with extreme pain and sometimes blindness. Skin lesions are common, including erythema nodosum and pyoderma. Involvement of the central nervous system is rare, but has resulted in the death of the patient on at least 3 occasions. Such central nervous involvement has been recorded in the literature in ten cases, and three additional cases are now described from the London Hospital. The involvement is widespread and may include meningitis, spastic weakness of the limbs, external ophthalmoplegia, acute confusional states, and progressive dementia, with varying changes in the spinal fluid. The precise aetiology is still obscure. There is some evidence that cortisone is of value in treatment, especially in the early stages, but reports of its effects are somewhat conflicting.

*Hugh Garland*

**Analysis of the Results of the Treatment of Yaws with a Single Injection of Procaine Penicillin with 2 per cent. Aluminium Monostearate.** HUME, J. C., and FACIO, G. (1956). *Bull. Wld Hlth Org.*, **15**, 1057.

In Haiti a total of 1,049 patients with yaws were treated with a single injection of procaine penicillin with aluminium monostearate (PAM). The criteria for

inclusion in the group studied were the presence of dark-field positive lesions and a positive reaction to serological tests, including quantitative and qualitative flocculation tests using the VDRL technique with cardiolipin antigen and the Kahn technique with standard antigen. An intramuscular injection of 150,000, 300,000, or 600,000 units PAM was given, the majority of patients (826) receiving 600,000 units. Of this group of 826 patients, 74.5 per cent. were followed up for 2 years after treatment, and analysis of the results showed that the cumulative retreatment rate was very gratifying. The authors emphasize, however, that these results cannot be compared with those obtained with PAM in syphilis. Approximately 30 per cent. of the patients were seronegative after 2 years, a finding in line with previous experience of the serological response to adequate therapy in yaws. Neither sex nor age appeared to have any influence on the results. The criterion for treatment was the re-appearance of dark-field positive lesions, some of which were considered to be due to re-infection rather than to relapse.

The results obtained with 300,000 units PAM were surprisingly good, and although the series was too small for statistical comparison with the group given 600,000 units, the impression was that the results were much the same, with a slightly higher rate of reversal of positive serological reactions in the lower-dosage group. It is concluded that a single dose of 600,000 units of a reliable preparation of PAM which conforms to the standards laid down by W.H.O. is the method of choice for mass treatment campaigns against yaws, where control of infectiousness is the primary aim. The criteria for retreatment should probably be based on a confirmed rise in serological titre one month or more after treatment or maintenance of the original titre for 6 months after treatment.

*Robert Lees*

**Role of the Laboratory in the Diagnosis of Venereal Disease.** RODA, A. P. DE (1957). *J. Philipp. med. Ass.*, **33**, 159. 7 refs.

**Venereal Disease Research Laboratory Field Consultation Services.** STOUT, G. W., HARRIS, A., and WALLACE, A. L. (1957). *Publ. Hlth Rep. (Wash.)*, **72**, 554. 1 ref.

**Transmission of Yaws in Nature.** HACKETT, C. J. (1957). *J. trop. Med. Hyg.*, **60**, 159. 2 figs, 15 refs.

**Lex Veneris—To Be or Not to Be.** [In English]. TOTTIE, M. (1957). *Acta derm-venereol. (Stockh.)*, **37**, 264.

**Venereal Diseases in Homosexuals.** HECHT, H. (1957). *Acta derm-venereol. (Stockh.)*, **37**, 182. 15 refs.

# CORRIGENDUM

It is regretted that, in the account of the Symposium on Trichomonas Infestation, the date of the discovery of the *Trichomonas vaginalis* by Donné was given as 1936 (*Brit. J. vener. Dis.*, 1957, **33**, 196). This should, of course, have read 1836.